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Summary of the Magnetized Target Fusion physics demonstration[1] T.P. INTRATOR, G.A. WURDEN, P.E. SIECK, R.M. RENNEKE, W.W. WAGANAAR, L.A. DORF, S.C. HSU, M. KOSTORA, Los Alamos National Laboratory, R.E. SIEMON, T. AWE, Univ. Nevada - Reno, A.G. LYNN, M. GILMORE, Univ. New Mexico, J. DEGNAN, C. GRABOWSKI, E.L. RUDEN, Air Force Research Laboratory - Kirtland — We summarize a Magnetized Target Fusion (MTF) effort, whose primary goal is the first integrated liner-on-plasma physics demonstration at Air Force Research Laboratory (AFRL) in 2008. LANL physics, engineering, diagnostic coordination, and hardware at AFRL brings the Field Reversed configuration (FRC) to the liner. To minimize the technical risk, physics questions must be resolved. These require detailed instrumentation not compatible with the AFRL liner on plasma realization of this experiment. The LANL FRXL experiment is thus a separate physics oriented front end with slotted liner, radial access for probes, optical diagnostics, and magnetics. We will measure the trapped flux, plasma entry to the liner region mirror, how well the mirror trapping works, how well the FRC bounces at the end mirror, effects on the FRC lifetime, trade off of translation speed against FRC lifetime, and helicity created with conical theta coils.

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